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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,803	11/22/2000	Paul O. Sheppard	99-62	2602

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EXAMINER
LI, BAO Q

ART UNIT	PAPER NUMBER
1648	

MAIL DATE	DELIVERY MODE
07/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/718,803	SHEPPARD ET AL.	
	Examiner	Art Unit	
	Bao Qun Li	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4,5,7,9 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7,9 and 10* is/are allowed.

6)☒ Claim(s) *4 and 5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This is a response to the amendment filed on 06/06/07. Claims 4-5, 7, 9 have been amended. Claims 1-3, 6, 8, 11-26 were canceled. Claims 4-5, 7, 9, 10 are pending and considered before the examiner.

Please note any ground of rejection(s) that has not been repeated is removed. Text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The rejection of claims 1, 3 and 6 under 35 U.S.C. 102(b) as being anticipated by Sheppard et al. (WO 98/42840A1) has been withdrawn since claims 1, 3 and 6 have been canceled by applicants.

3. However, upon reconsidering the pending claims, a new ground rejection has been established.

4. Claims 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Sheppard et al. (WO 98/42840A1) in view of the disclosure by Arena et al. (WO 97/21730A10).

5. Claims 4-5 are directed to a method for forming a peptide-receptor complex, wherein the peptide comprising contacting the peptide comprising the amino acid residues 24-37 of SEQ ID NO: 2 with receptor, i.e. GHS-R comprising the amino acid sequence of SEQ ID NO: 5, preferably, amino acids from 41 to 326 of SEQ ID NO: 5, which is expressed on the cell surface.

6. (WO 98/42840A1) teach a method comprises administering a peptide comprising the same amino acid sequence of SEQ ID NO: 2 to the GI tract of animal rats. While the reference does not explicitly teach that the rat cells express the receptor comprising the claimed amino acid sequence of SEQ ID NO: 5, the rats inherently express the claimed receptors comprising the identical amino acid sequence of claim 5 in light of the disclosure by Arena et al. (WO

97/21730A10). Arena et al. disclosed variety of the GHS-Rs, wherein one of them is the claimed human HGS-R of SEQ ID NO: 5 expressed in rat. To this context, the claimed method is inherently anticipated by (WO 98/42840A).

7. Regarding to this inherency rejection, applicants' attention is directed to Feit et al. (2003, J. Pat. Trade. Off. Soc., Vol. 85, No. 1, pages 5-21), in that article, Feit et al. teach three criteria for analyzing whether the prior art is inherently anticipate a claim(s). (1) The most important criterion is certainty. Citing *In re Tomlinson* and *In re Zierden*, Feit et al. state that certainty is established when the reference process necessarily **results** in the claimed process as opposed to a **possibility.** (2) The second criterion is chronology; it will always happen. Feit et al. state that the chronological test is forward chronology. Citing *Eli Lilly and Co. v Barr Laboratories, Inc.*, Feit et al. argue that the claimed result must always be obtained based upon the prior art method. (3) The third criterion is the legal standard. Feit et al., citing *Continental Can,* state that the legal standard is whether the missing descriptive material would be so recognized by a person of ordinary skill in the art as necessarily present in the thing.

8. In the instant case, (1) the receptor comprising the amino acid sequence of SEQ ID NO: 5 is inherently expressed in the animal model, i.e. rat, taught by the cited prior art (WO 98/42840A1), indicating the reference process necessarily **results** in the claimed process as opposed to a **possibility. (2)** As long as the peptide is administered into animal rat, the complex between the peptide with identical amino acid sequence set forth in SEQ ID NO: 2 with the receptor comprising the claimed amino acid sequence of SEQ ID NO: 5 will always happen unless there is any manipulation step that prevents the peptide to contact with the cells that express the receptor. However, there is no such manipulation step presents in the claimed method or taught in the specification.

9. (3) regarding the third criterion, MPEP 2105 cites **INHERENT FEATURE NEED NOT BE RECOGNIZED AT THE TIME OF THE INVENTION.** There is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure at the time of invention, but only that the subject matter is in fact inherent in the prior art reference. Schering Corp. v. Geneva Pharm. Inc., 339 F.3d 1373, 1377, 67 USPQ2d 1664, 1668 (Fed. Cir. 2003) (rejecting the contention that inherent anticipation requires recognition by a person of ordinary skill in the art before the critical date and allowing expert testimony with respect to post-critical

date clinical trials to show inherency); see also Toro Co. v. Deere & Co., 355 F.3d 1313, 1320, 69 USPQ2d 1584, 1590 (Fed. Cir. 2004) ("[T]he fact that a characteristic is a necessary feature or result of a prior-art embodiment (that is itself sufficiently described and enabled) is enough for inherent anticipation, even if that fact was unknown at the time of the prior invention."); Abbott Labs v. Geneva Pharms., Inc., 182 F.3d 1315, 1319, 51 USPQ2d 1307, 1310 (Fed.Cir.1999). In the instant case,

10. Hence, the method taught by WO 98//428840 that inherently comprises the process of complex formation between the peptide with amino acid sequence set forth in SEQ ID NO: 2 to the receptor comprising the amino acid sequence of SEQ ID NO: 5, the cited reference inherently anticipate the claims.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. Claims 4-5 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,291,653B1, US patent No. 6,420,521B1, US patent No. 6,627,729B1, US patent No. 6,838,438B2, US patent No. 6,939,690B2 in light of the disclosure by Arena et al. (WO 97/21730A10).

13. The applied reference has at least one common inventor Paul O. Sheppard with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

14. US Patent No. 6,291,653B1, US patent No. 6,420,521B1, US patent No. 6,627,729B1, US patent No. 6,838,438B2, US patent No. 6,939,690B2 all teach a method comprises administering a peptide comprising the same amino acid sequence of SEQ ID NO: 2 to the GI tract of animal rats. While the references do not explicitly teach that the Rats' cells express the receptor comprising the claimed amino acid sequence of SEQ ID NO: 5, the administering peptide at least comprising the amino acid residues from 24 to 37 inherently binds to the receptors comprising SEQ ID NO: 5 in light of the disclosure by Arena et al. (WO 97/21730A10). Arena et al. disclosed variety of the GHS-Rs, wherein one of them is the claimed human HGS-R of SEQ ID NO: 5 expressed in rat.

15. Regarding to this inherency rejection, applicants' attention is directed to Feit et al. (2003, J. Pat. Trade. Off. Soc., Vol. 85, No. 1, pages 5-21), in that article, Feit et al. teach three criteria for analyzing whether the prior art is inherently anticipate a claim(s). (1) The most important criterion is certainty. Citing *In re Tomlinson* and *In re Zierden*, Feit et al. state that certainty is established when the reference process necessarily **results** in the claimed process as opposed to a **possibility.** (2) The second criterion is chronology; it will always happen. Feit et al. state that the chronological test is forward chronology. Citing *Eli Lilly and Co. v Barr Laboratories, Inc.*, Feit et al. argue that the claimed result must always be obtained based upon the prior art method. (3) The third criterion is the legal standard. Feit et al., citing *Continental Can,* state that the legal standard is whether the missing descriptive material would be so recognized by a person of ordinary skill in the art as necessarily present in the thing.

16. In the instant case, (1) the receptor comprising the amino acid sequence of SEQ ID NO: 5 is inherently expressed in the animal model, i.e. rat, taught by the cited prior art (WO 98/42840A1), indicating the reference process necessarily **results** in the claimed process as opposed to a **possibility. (2)** As long as the peptide is administered into animal rat, the complex

between the peptide with identical amino acid sequence set forth in SEQ ID NO: 2 with the receptor comprising the claimed amino acid sequence of SEQ ID NO: 5 will always happen unless there is any manipulation step that prevents the peptide to contact with the cells that express the receptor. However, there is no such manipulation step presents in the claimed method or taught in the specification.

17. (3) regarding the third criterion, MPEP 2105 cites **INHERENT FEATURE NEED NOT BE RECOGNIZED AT THE TIME OF THE INVENTION.** There is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure at the time of invention, but only that the subject matter is in fact inherent in the prior art reference. Schering Corp. v. Geneva Pharm. Inc., 339 F.3d 1373, 1377, 67 USPQ2d 1664, 1668 (Fed. Cir. 2003) (rejecting the contention that inherent anticipation requires recognition by a person of ordinary skill in the art before the critical date and allowing expert testimony with respect to post-critical date clinical trials to show inherency); see also Toro Co. v. Deere & Co., 355 F.3d 1313, 1320, 69 USPQ2d 1584, 1590 (Fed. Cir. 2004) ("[T]he fact that a characteristic is a necessary feature or result of a prior-art embodiment (that is itself sufficiently described and enabled) is enough for inherent anticipation, even if that fact was unknown at the time of the prior invention."); Abbott Labs v. Geneva Pharms., Inc., 182 F.3d 1315, 1319, 51 USPQ2d 1307, 1310 (Fed.Cir.1999). In the instant case,

18. Hence, the method taught by all the US patents list above that inherently comprises the process of complex formation between the peptide with amino acid sequence set forth in SEQ ID NO: 2 to the receptor comprising the amino acid sequence of SEQ ID NO: 5, the cited reference inherently anticipate the claims.

Claim Rejections - 35 USC § 112

19. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

20. Claims 7, 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for discovering peptide of SEQ ID NO: 2 binding to the receptor encoding the amino acid sequence of SEQ ID NO: 5, does not reasonably provide enablement for purifying the receptor encoding the amino acid residues comprising amino acid residues 41-326 of SEQ ID NO: 5 with the mobilized peptide or purification of said receptor expressing cell with said peptide. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims

21. The test of scope of the enablement is whether one skilled in the art could make and use the claimed invention from the disclosures in the application coupled with information known in the art would undue experimentation (See United States v. Theketronic Inc., 8USPQ2d 1217 (fed Cir. 1988). Whether undue experimentation is required is not based upon a single factor but rather a conclusion reached by weighting many factors. Theses factors were outlined in Ex parte Forman, 230 USPQ 546 (Bd. Pat. App. & Inter. 1986) and gain in re Wands, 8USPQ2d 1400 (Fed. Cir. 1988). These factors include the following: 1). Nature of invention, 2). State of unpredictability of prior art, 3). Level of skill in the art, 4). Amount of direction presented by the specification; 5). Working examples taught by the specification; 6). Breath of claims, 7). Amount of the experimentation for making and using the invention commensurate in scope with these claims.

22. In the instant t case, the claimed invention is directed to a method by using a peptide to purify a cell population that expresses the receptor of the peptide. The specification only teaches that applicants have identified the receptor of the peptide with the amino acid sequence of SEQ ID NO: 2 is one of know receptors of GHS-Rs with SEQ ID NO: 5. GHR-Rs are G-protein coupled receptors that are not exclusive for the claimed peptide binding. It is also no bound by other receptors in intro and in vivo. The binding the claimed peptide of SEQ ID NO: 2 induces several biological activities related to the glucose transportation, empty of stomach and animal growth as evidenced by Arena et al. (WO 97/21730A10). However, the natural expression of said receptor is not very much clear and is very low in most cell types. Perhaps, it is predominantly expressed pituitary cells. It is also well known in the art that the peptide binding to its receptor usually causes the receptor desensitization and internalization. The receptor

identified by applicants in this application is one of the receptor of GHS-R, or it is the motilin receptor The specification does not teach what kind of binding is between the said peptide with said rector. The peptide binding to motilin receptor causes the receptor desensitization and receptor internalization as evidenced by Mitselos A et al. (Biochem Pharmacol. 2007 Jan 1;73(1):115-24, see entire document). The specification does not teach whether the receptor /peptide in the instant case is a reversible or non-reversible process? How such kind of binding can be disassociated with a buffer, and what kind of buffer is suitable for such binding and disassociation. Because once the receptor is internalized, the receptor will not expose its binding domain on its surface and its binding capacity will be greatly reduced. Naturally, the expression of such receptor is very low in most cell types in the body, the specification does not teach which cell population can be used for the purification, how a cell population can be purified. Because the specification does not teach whether the binding between the receptor and peptide is reversible, nor provides any information regarding binding buffer or disassociation buffer for the purification of peptide or cell. The specification does not have any working example for purifying either cell or peptide.

23. Given the above analysis, it must be considered that the skilled artisan would have to conduct undue and excessive experimentation in order to practice the claimed invention.

24.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bao Qun Li whose telephone number is 571-272-0904. The examiner can normally be reached on 6:30 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce Campell can be reached on 571-272-0974. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bao Qun Li
July 02, 2007

BAOQUN LI, MD
PATENT EXAMINER